CLAIMS

1. A method of fabricating a semiconductor device, including a first pattern (14) extending in a first direction and a second pattern (15) identical in geometry to said first pattern (14) and extending in a second direction orthogonal to said first direction, comprising the steps of:

employing linearly polarized illumination to perform exposure along a mask pattern including a first mask pattern (16) and a second mask pattern (17) used to form said first pattern (14) and said second pattern (15), respectively; and

subsequently forming said first and second patterns (14, 15) having a geometry along said mask pattern, said first and second mask patterns (16, 17) being different in geometry.

2. The method of fabricating a semiconductor device according to claim 1, wherein:

said first direction is parallel to a direction of polarization of light passing through said first and second mask patterns (16, 17) for exposure; and

said first mask pattern (16) is larger in width than said second mask pattern (17).

3. The method of fabricating a semiconductor device according to claim 1, wherein said first and second mask patterns (113, 114) have first and second corners (113A, 114A) having first and second recesses (117A, 117B) different in geometry.

4. The method of fabricating a semiconductor device according to claim 1, wherein said first and second mask patterns (113, 114) have first and second corners (113A, 114A) having first and second protrusions (118A, 118B) different in geometry.

5. A method of fabricating a semiconductor device including a first pattern

(14) extending in a first direction and a second pattern (15) equal in width to said first pattern (14) and extending in a second direction orthogonal to said first direction, comprising the steps of:

employing linearly polarized illumination to perform exposure along a mask pattern including a first mask pattern (16) and a second mask pattern (17) used to form said first pattern (14) and said second pattern (15), respectively; and

subsequently forming said first and second patterns (14, 15) having a geometry along said mask pattern, said first and second mask patterns (16, 17) being different in width.

6. The method of fabricating a semiconductor device according to claim 5, wherein:

said first direction is parallel to a direction of polarization of light passing through said first and second mask patterns (16, 17) for exposure; and

said first mask pattern (16) is larger in width than said second mask pattern (17).

7. The method of fabricating a semiconductor device according to claim 5, wherein said first and second mask patterns (113, 114) have first and second corners (113A, 114A) having first and second recesses (117A, 117B) different in geometry.

8. The method of fabricating a semiconductor device according to claim 5, wherein said first and second mask patterns (113, 114) have first and second corners (113A, 114A) having first and second protrusions (118A, 118B) different in geometry.

9. A method of fabricating a semiconductor device including a first isolated pattern (101) extending in a first direction and a second isolated pattern (102) identical in geometry to said first isolated pattern (101) and extending in a second direction orthogonal to said first direction, comprising the steps of:

employing linearly polarized illumination to perform exposure along a mask pattern including a first mask pattern (113) and a second mask pattern (114) used to form said first isolated pattern (101) and said second isolated pattern (102), respectively; and

subsequently forming said first and second isolated patterns (101, 102) having a geometry along said mask pattern, said first and second mask patterns (113, 114) being different in geometry.

10. A method of fabricating a semiconductor device including a memory cell portion (10) and a peripheral circuitry portion (11), comprising the steps of:

employing linearly polarized light to transfer on a resist film (123) formed on a wafer (120) a mask pattern (19, 20) formed on a mask;

patterning said resist film (123); and

employing said resist film patterned (123A) to form a pattern (122A), wherein to form a pattern of said peripheral circuitry portion (11) said mask pattern (19, 20) is dimensionally corrected by an amount varied between vertical and horizontal directions.

11. A method of fabricating a semiconductor device including a first pattern extending in a first direction and a second pattern equal in width to said first pattern and extending in a second direction orthogonal to said first direction, comprising the steps of:

employing linearly polarized light to transfer on a resist film (123) formed on a wafer (120) a mask pattern (26, 26A) formed on a mask;

patterning said resist film (123); and

employing said resist film patterned (123A) to form a pattern (122A), wherein:

said first direction is parallel to said linearly polarized light's direction of polarization; and

to form said second pattern a mask pattern is provided including a main pattern

(26A) corresponding to said second pattern and a subpattern (27) smaller in width than said main pattern (26A) and sandwiching said main pattern.

12. A method of fabricating a semiconductor device including a first pattern extending in a first direction and a second pattern equal in width to said first pattern and extending in a second direction orthogonal to said first direction, comprising the steps of:

employing linearly polarized light to transfer on a resist film (123) formed on a wafer (120) a mask pattern (28, 30) formed on a mask;

patterning said resist film (123); and

employing said resist film patterned (123A) to form a pattern (122A), wherein:

to form said first pattern a first mask pattern is provided including a first main pattern (28) corresponding to said first pattern and a first subpattern (29) smaller in width than said first main pattern (28) and sandwiching said first main pattern (28);

to form said second pattern a second mask pattern is provided including a second main pattern (30) corresponding to said second pattern and a second subpattern (31) smaller in width than said second main pattern (30) and sandwiching said second main pattern (30); and

said second subpattern (31) is larger in width than said first subpattern (29).

13. A method of fabricating a semiconductor device including a hole pattern (45), comprising the steps of:

employing linearly polarized light to transfer on a resist film (123) formed on a wafer (120) a mask pattern (42) formed on a mask;

patterning said resist film (123); and

employing said resist film patterned (123A) to form a pattern (122A), wherein to form said hole pattern (45) said mask pattern (42) has an opening larger in width in a first direction parallel to said linearly polarized light's direction of polarization than a

second direction orthogonal to said first direction.

14. The method of fabricating a semiconductor device according to claim 13, wherein said mask pattern (42) has a halftone region (40).

15. A method of fabricating a semiconductor device, employing an illumination device (10), a mask (7) and a projective lens (8), comprising the step of employing said illumination device (1)'s illumination light to transfer on a resist film formed on a wafer (9) a mask pattern (5) formed on a mask (7), wherein said illumination light is first linearly polarized light and second linearly polarized light combined together, said first linearly polarized light having a direction of polarization in a first direction parallel to a direction of extension of said mask pattern (5), second linearly polarized light having a direction of polarization in a second direction orthogonal to said first direction.

16. The method of fabricating a semiconductor device according to claim 15, wherein said second linearly polarized light has an amplitude of 2 to 20% of that of said first linearly polarized light.

17. A method of generating mask pattern data defining a mask pattern (5) for forming a pattern (6) on a wafer (9) by linearly polarized light, the method introducing a dimensional correction by an amount varied between a first direction parallel to said linearly polarized light's direction of polarization and a second direction orthogonal to said first direction.